

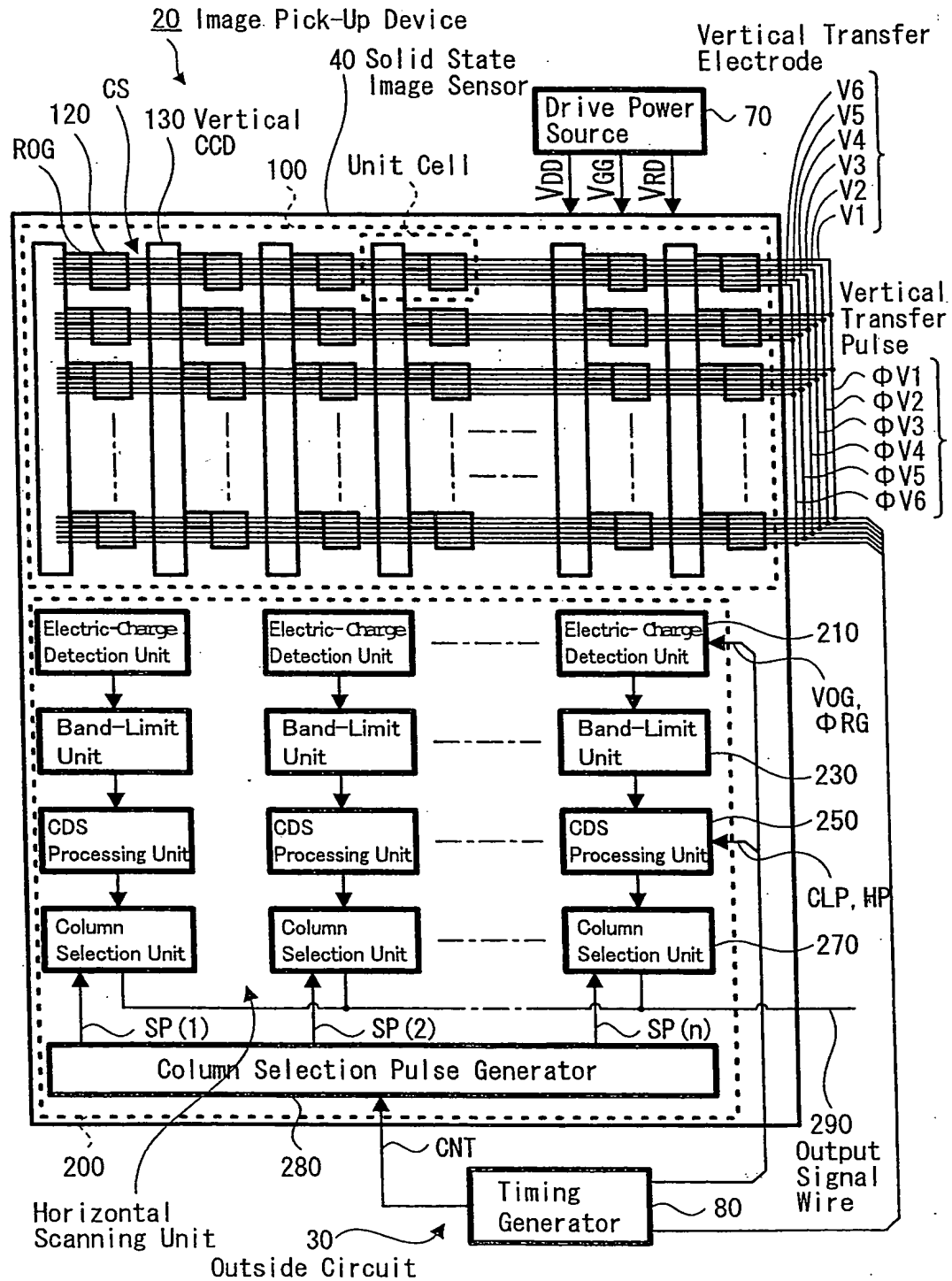
SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE

Inventor: Takayuki Toyama

Attorney Docket No.: 075834.00400

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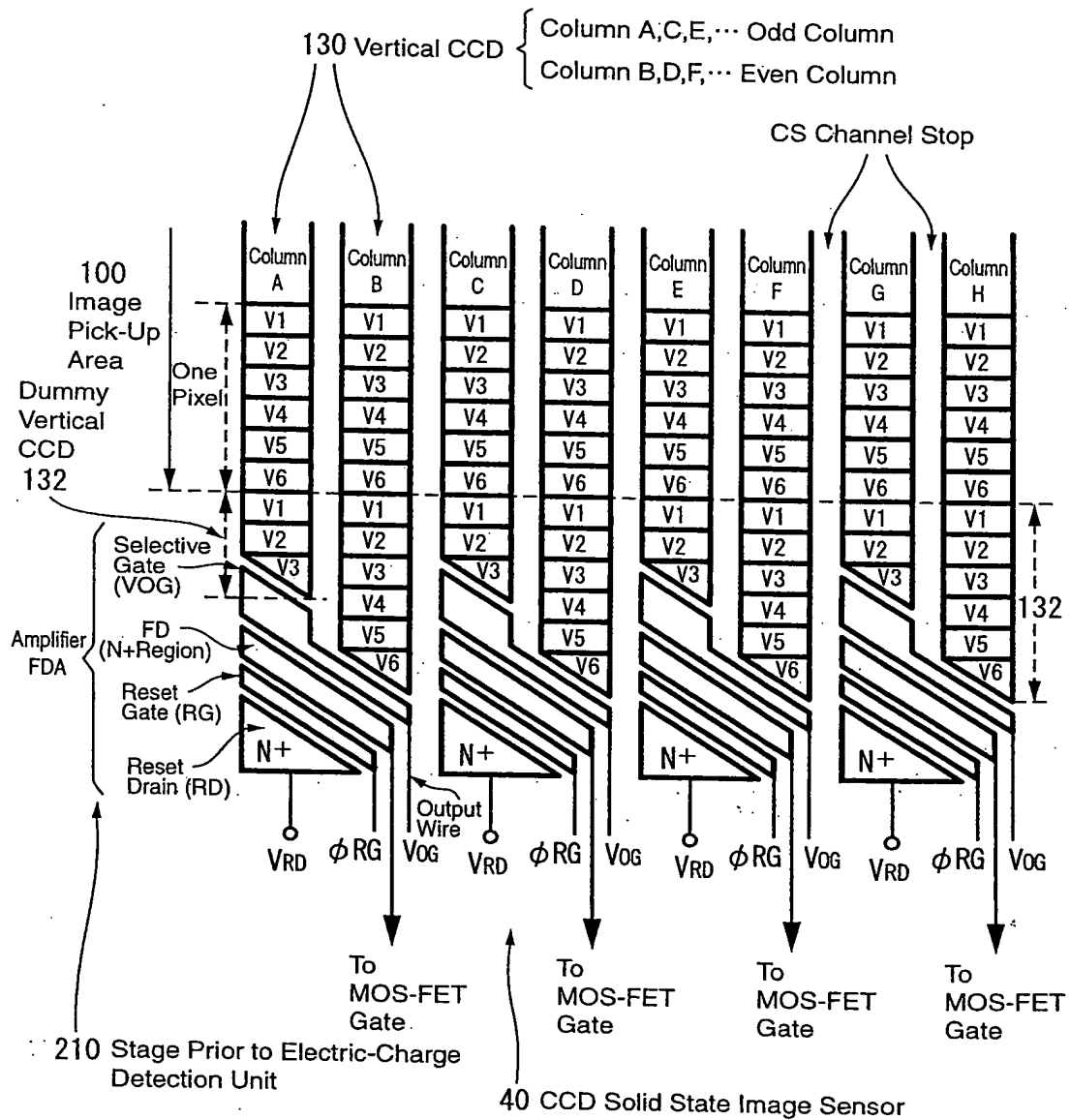
FIG. 1



**SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE**

Inventor: Takayuki Toyama
Attorney Docket No.: 075834.00400
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FIG. 2



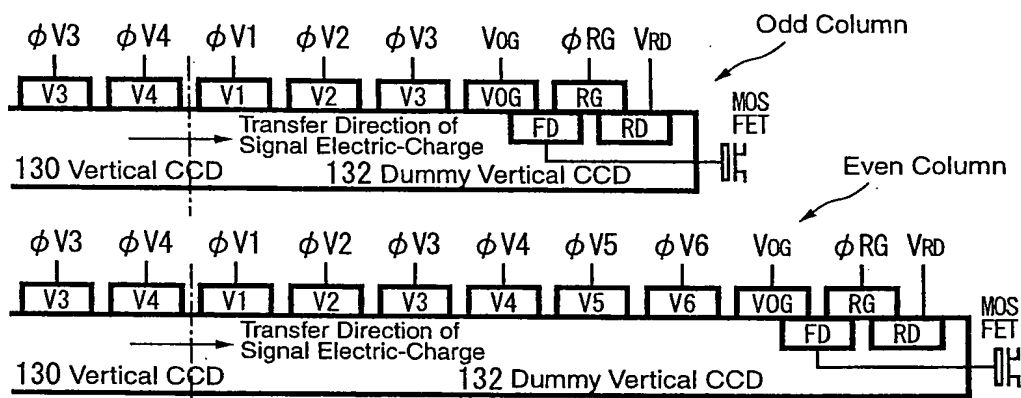
SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
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FIG. 3



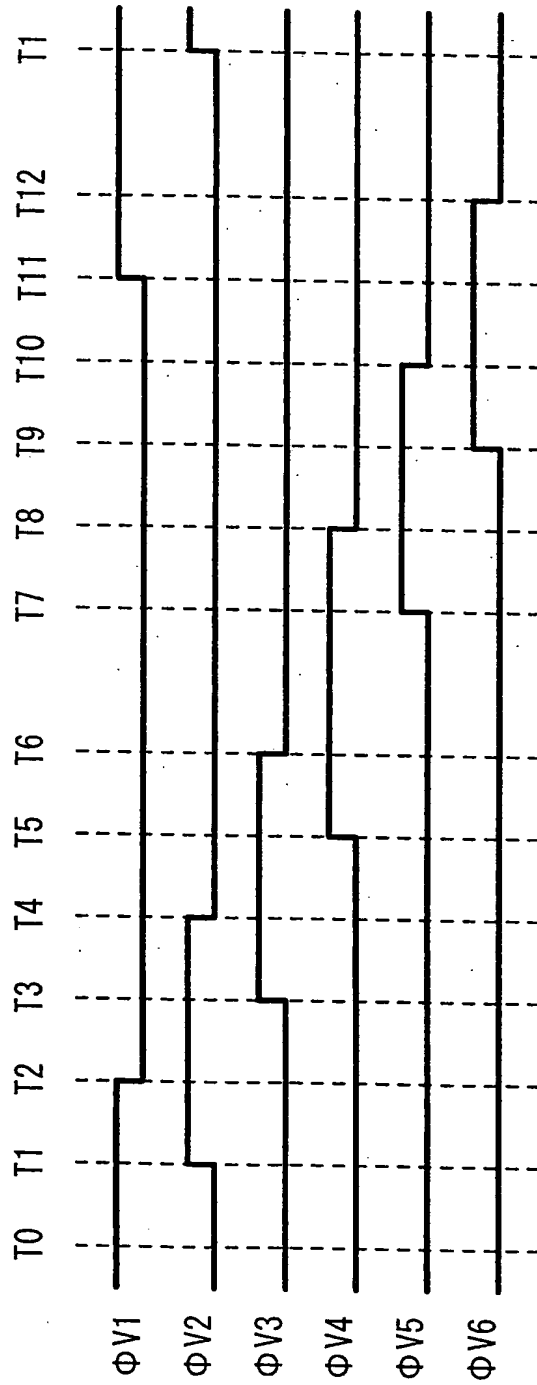
SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
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Inventor: Takayuki Toyama

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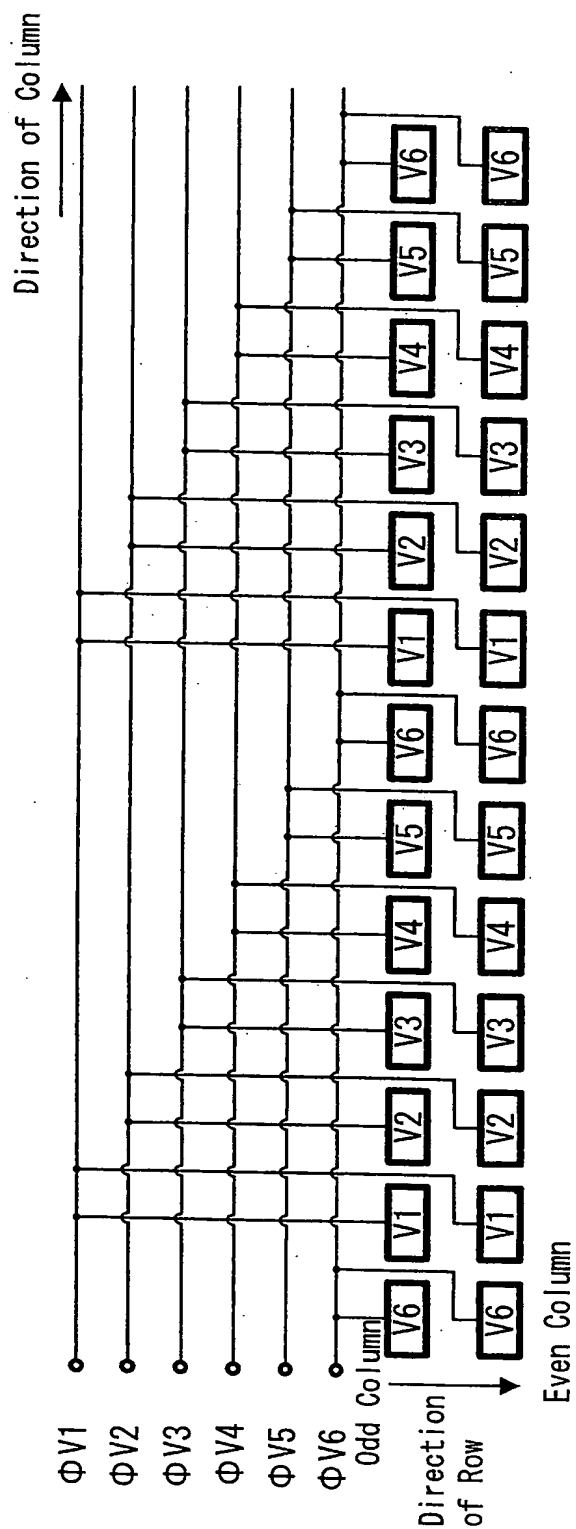
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FIG. 4



SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE
Inventor: Takayuki Toyama
Attorney Docket No.: 075834.00400
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FIG. 5

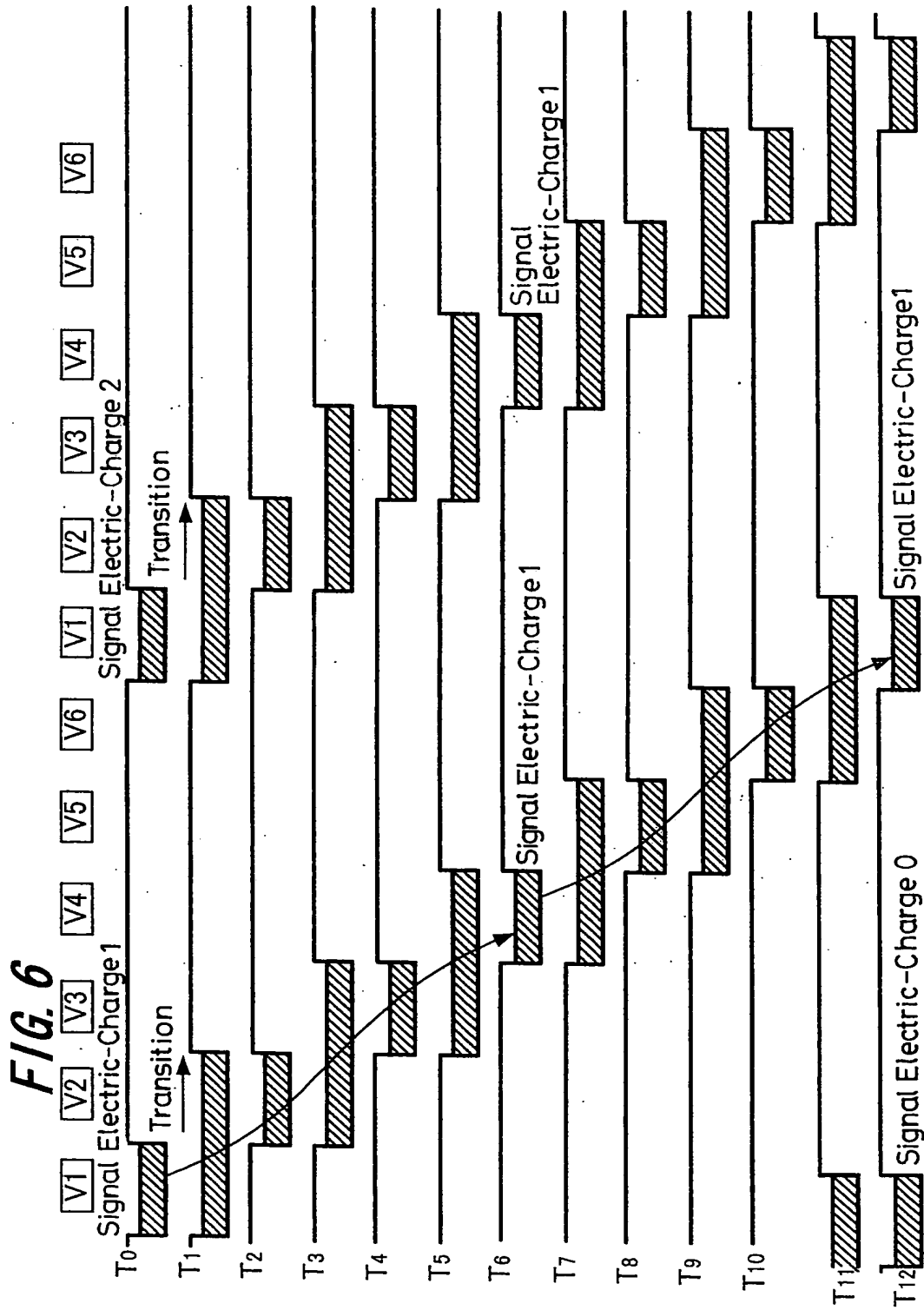


SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE

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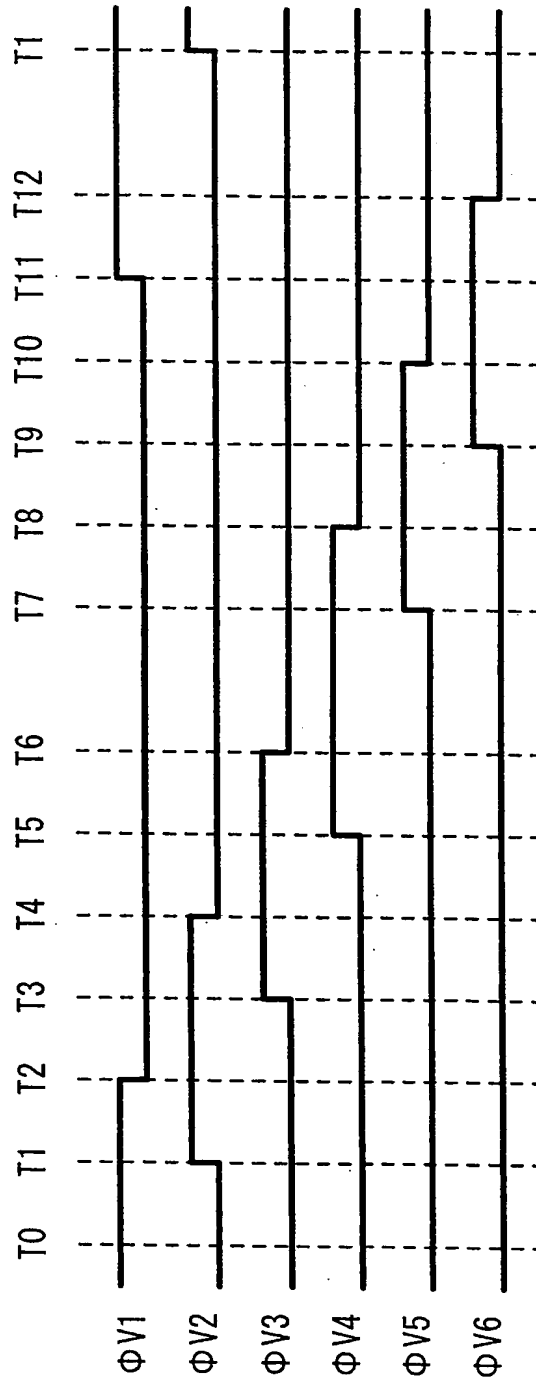
SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
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Inventor: Takayuki Toyama

Attorney Docket No.: 075834.00400

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FIG. 7

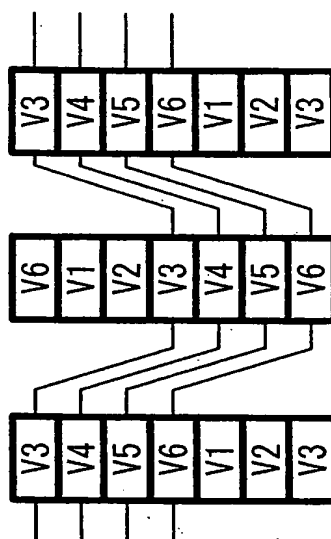
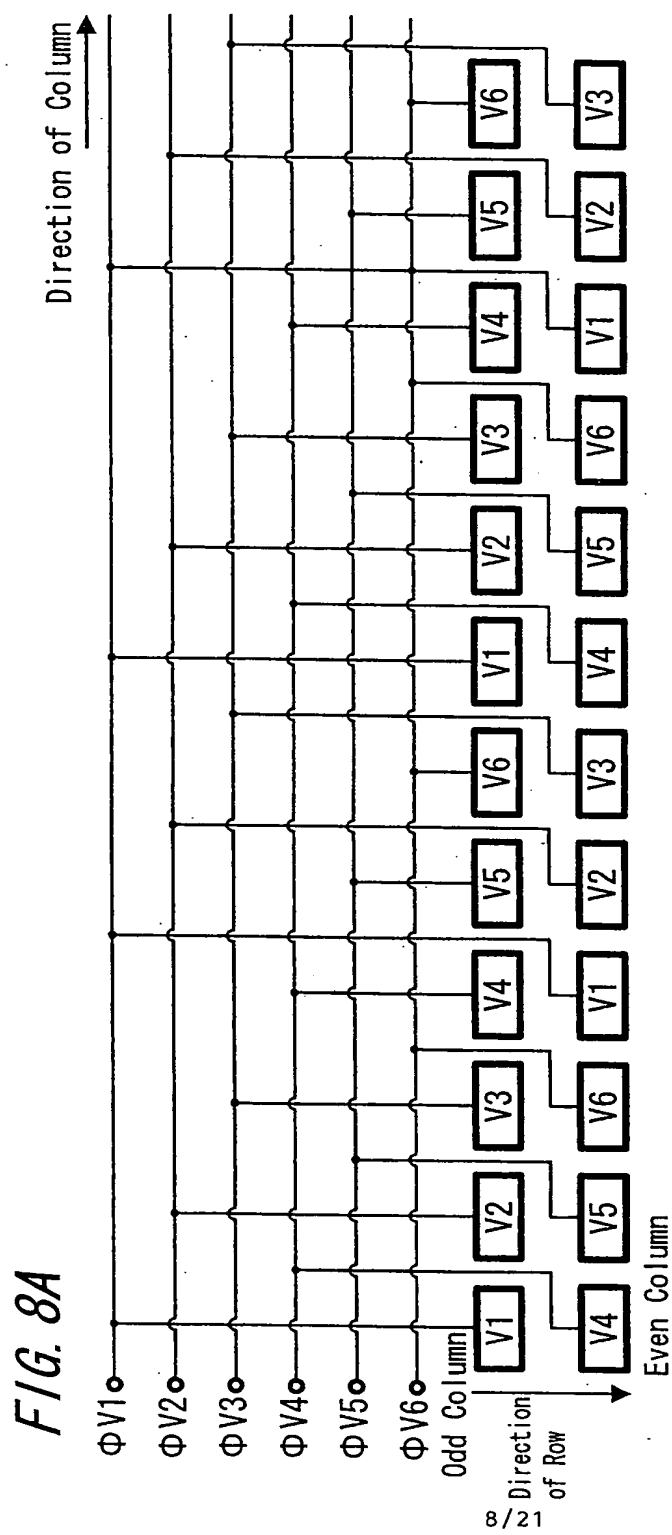


SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE

Inventor: Takayuki Toyama

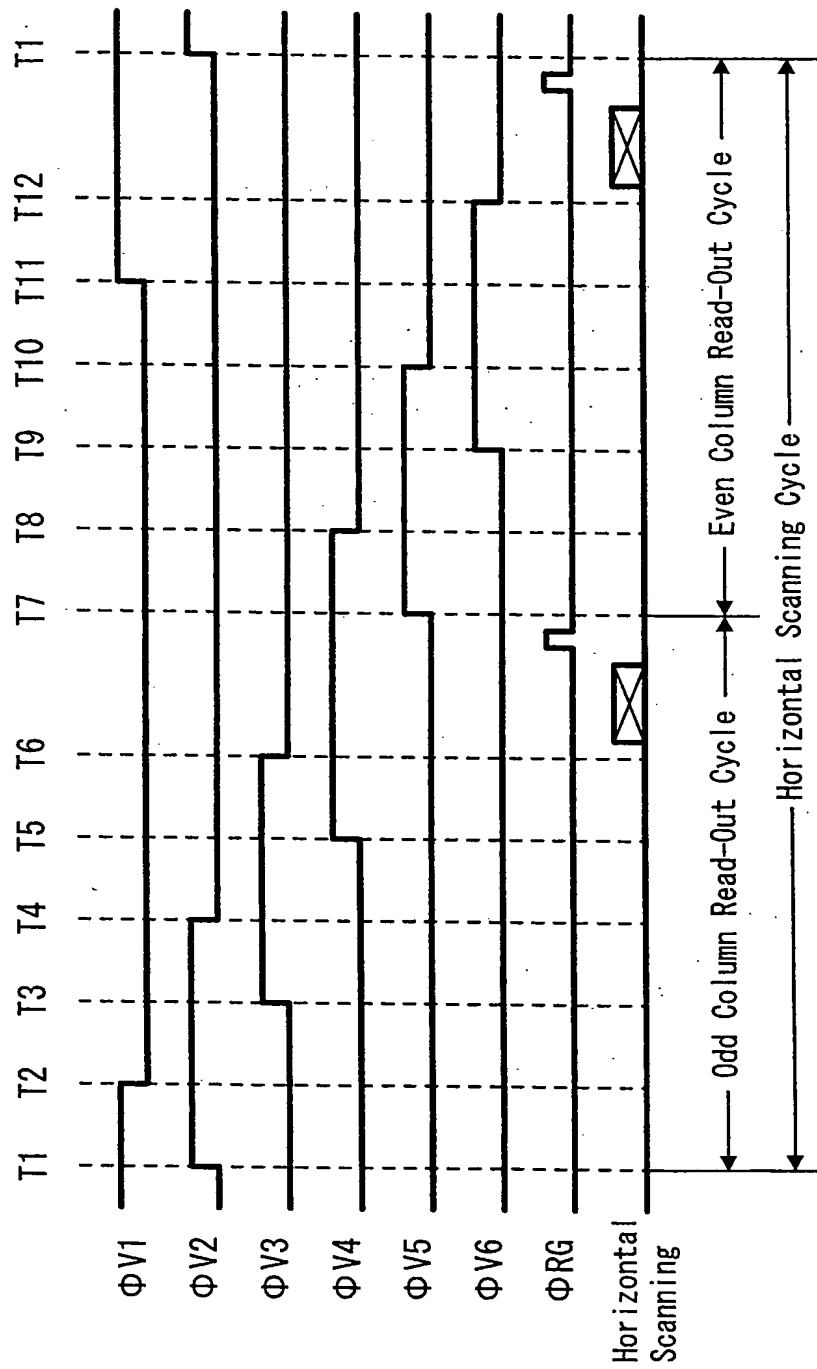
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SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
 IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE
 Inventor: Takayuki Toyama
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FIG. 9



**SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE**

Inventor: Takayuki Toyama
Attorney Docket No.: 075834.00400
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FIG. 10A

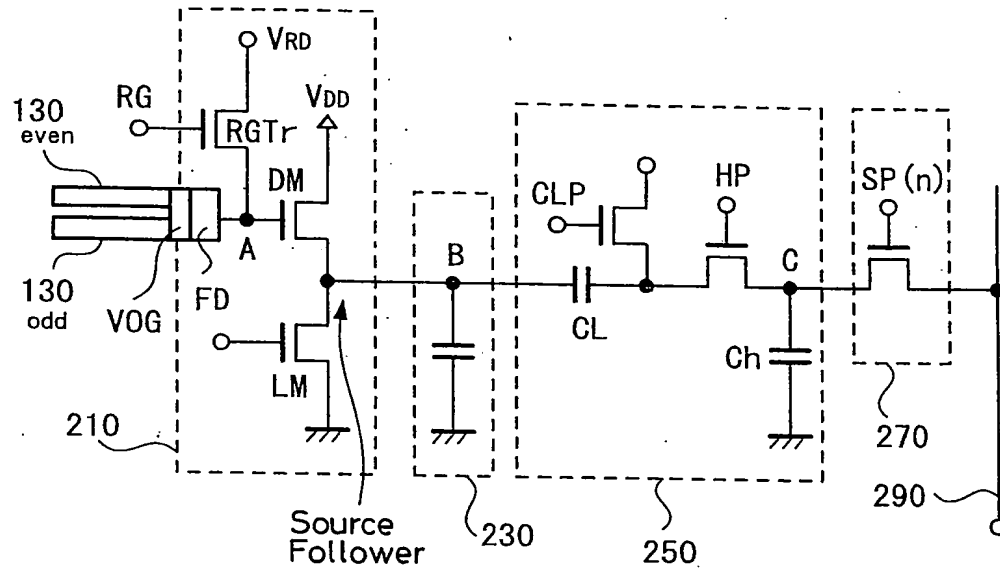
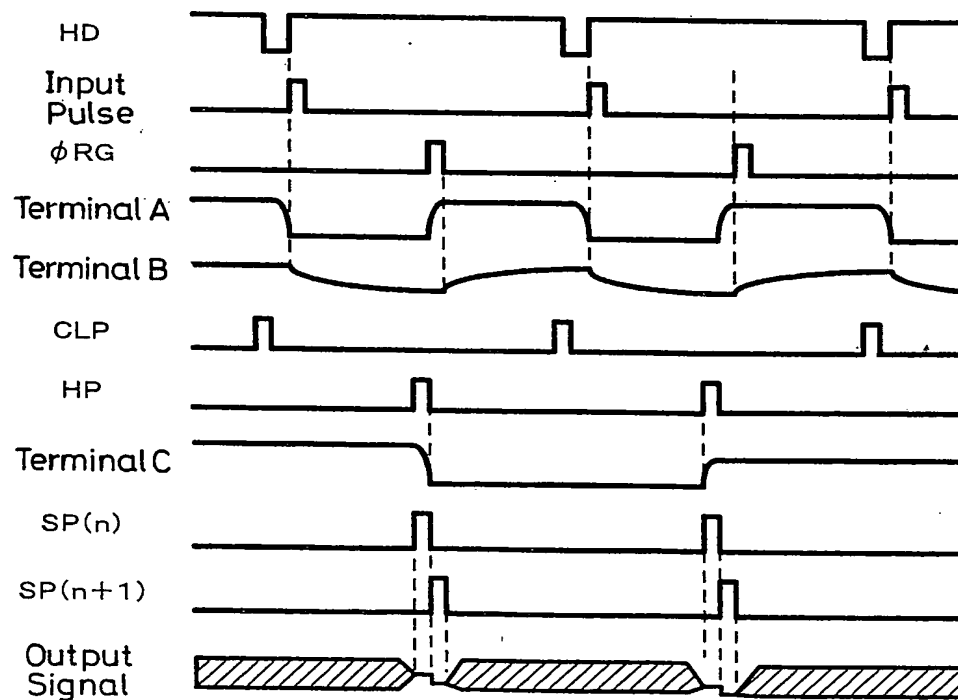


FIG. 10B



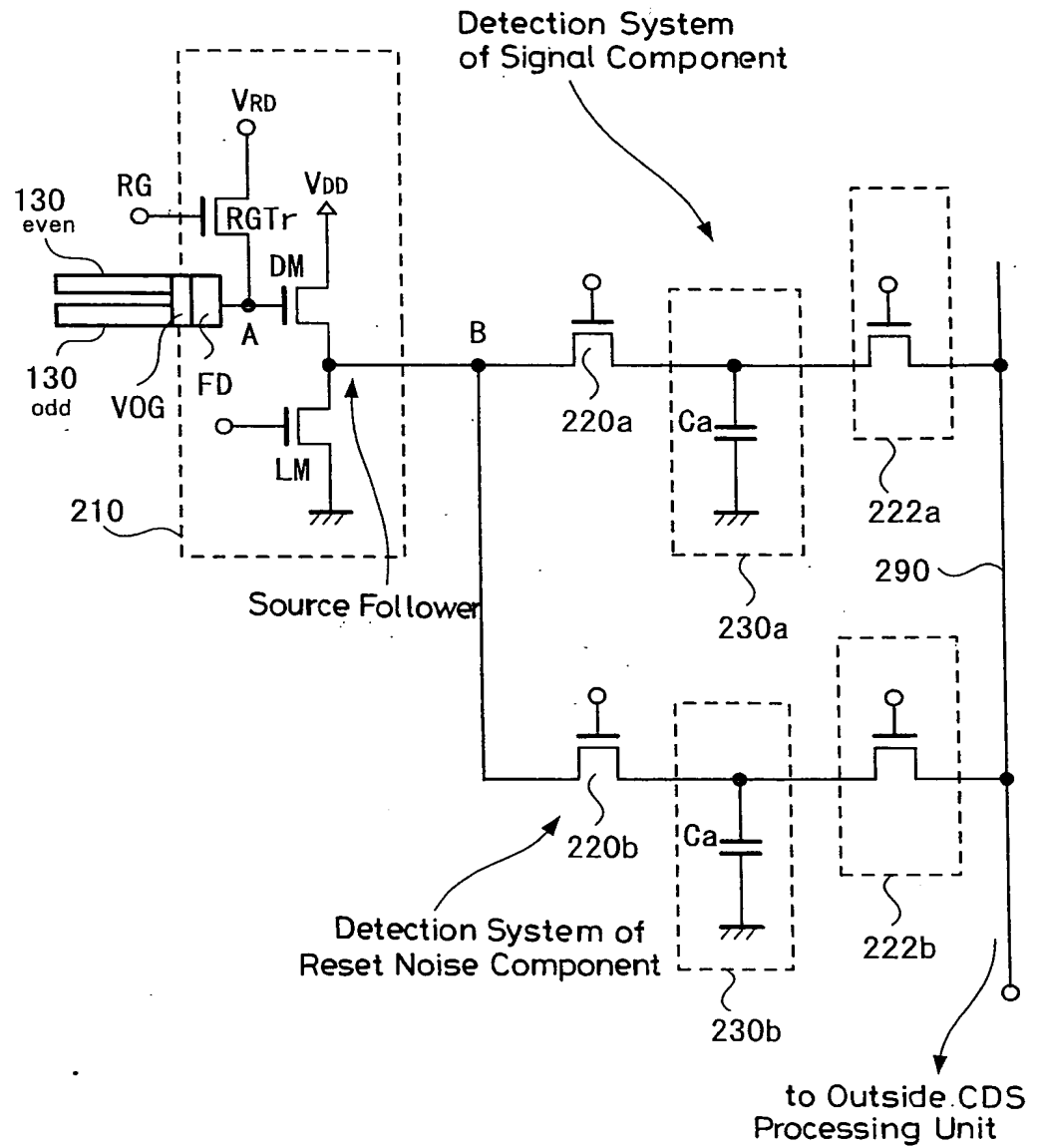
SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
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Inventor: Takayuki Toyama

Attorney Docket No.: 075834.00400

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FIG. 11

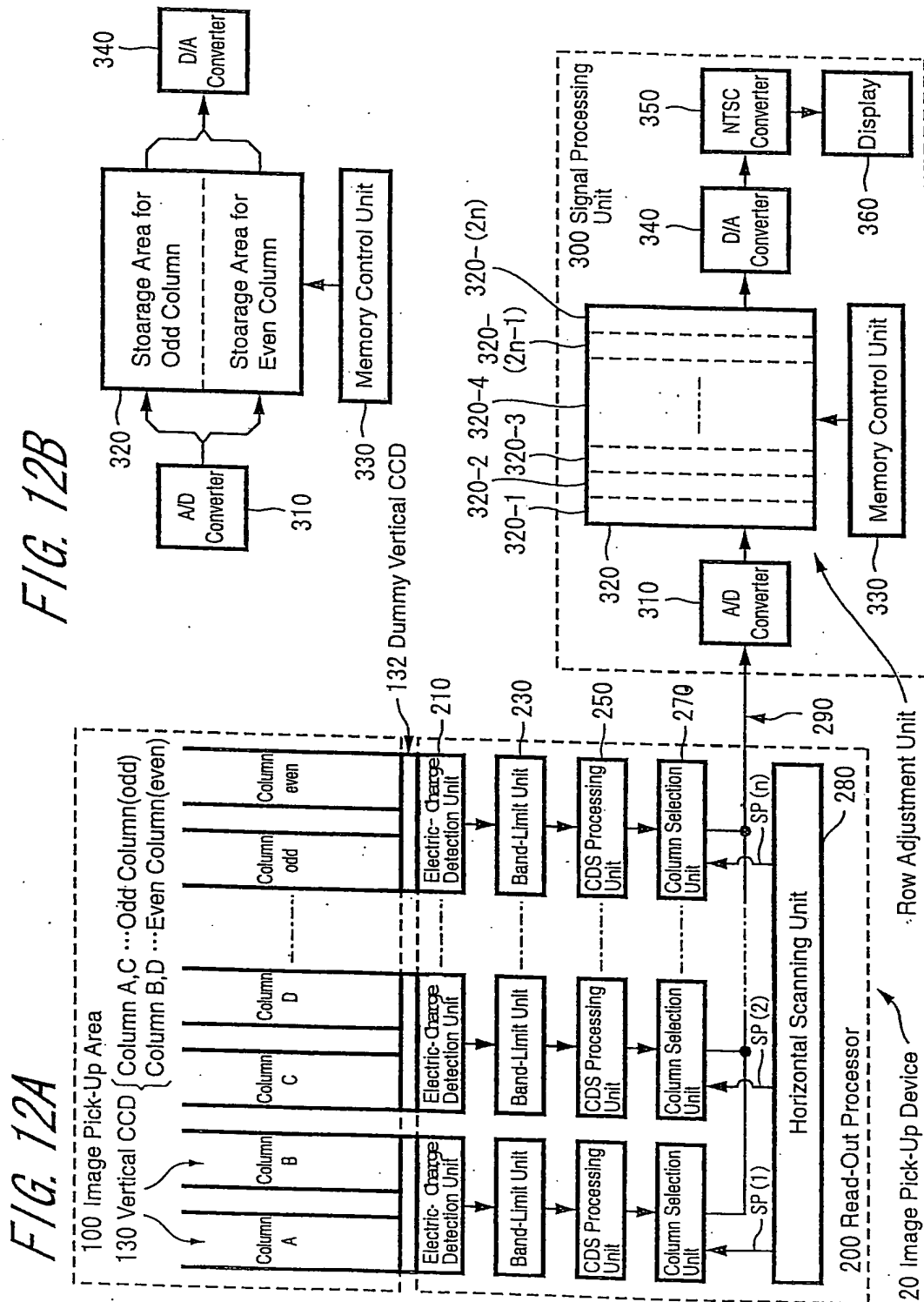


SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE

Inventor: Takayuki Toyama

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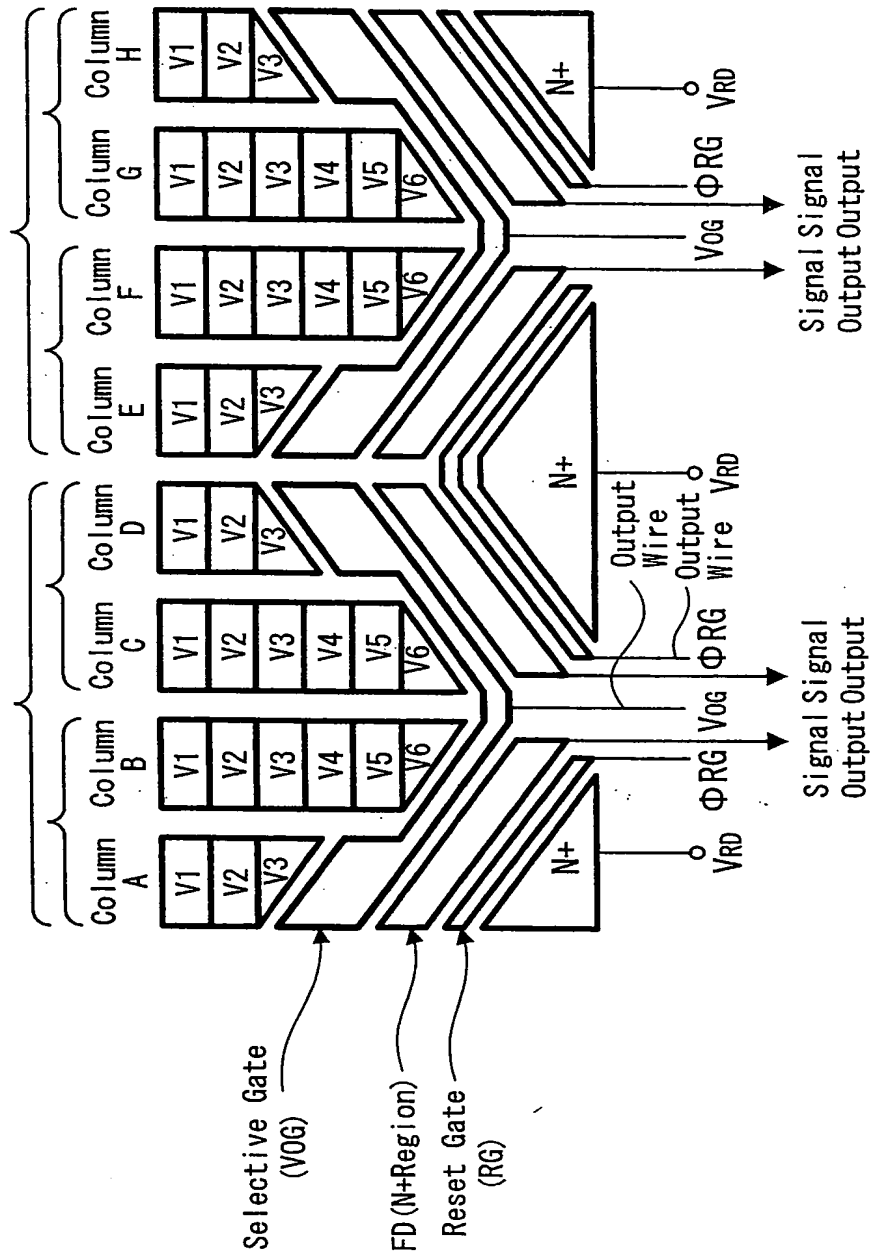
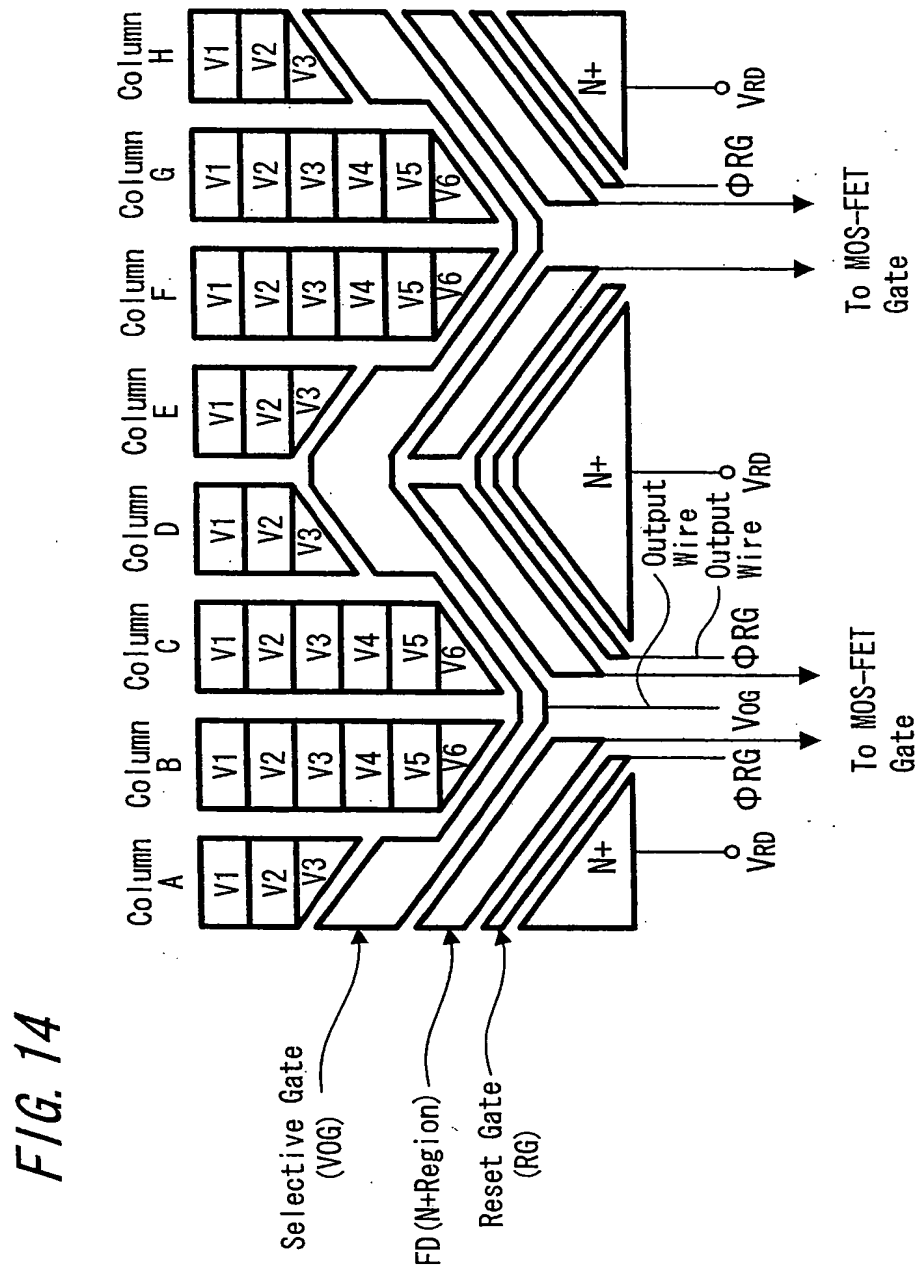


FIG. 13

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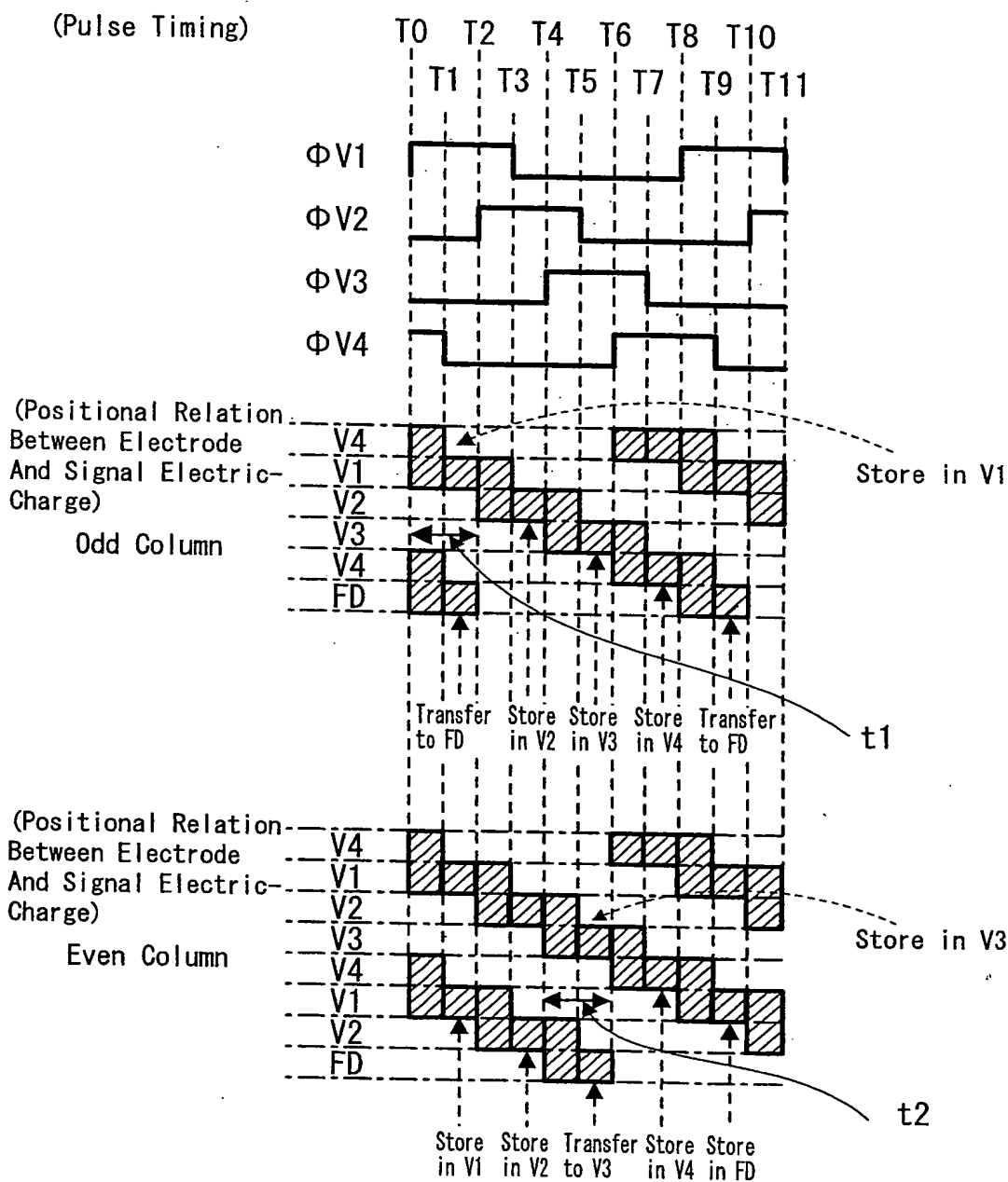
SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE

Inventor: Takayuki Toyama

Attorney Docket No.: 075834.00400

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FIG. 15



**SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE**

Inventor: Takayuki Toyama
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FIG. 16A

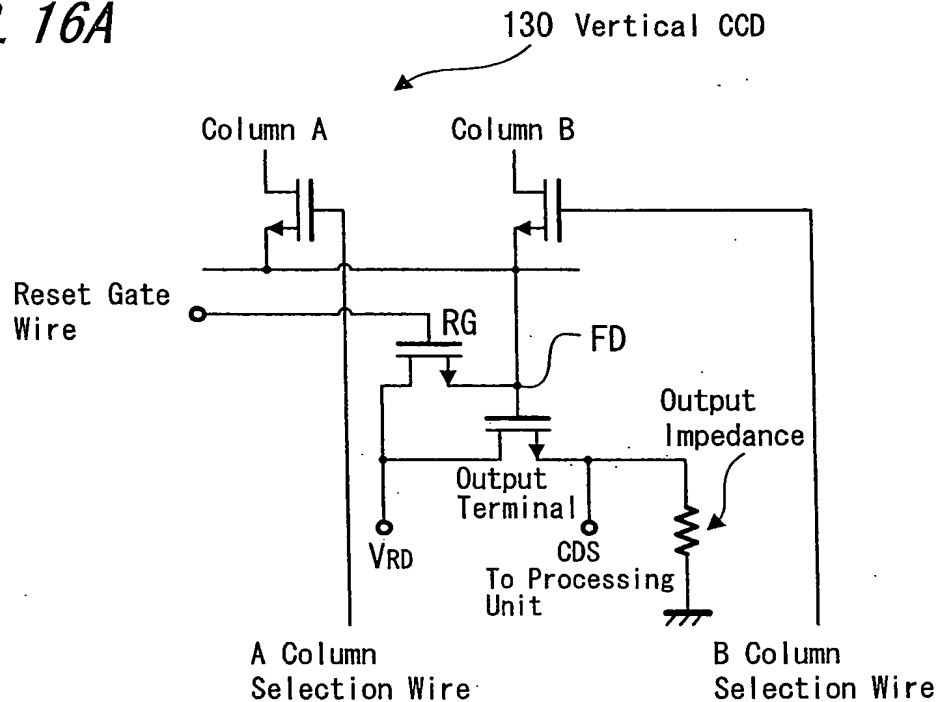
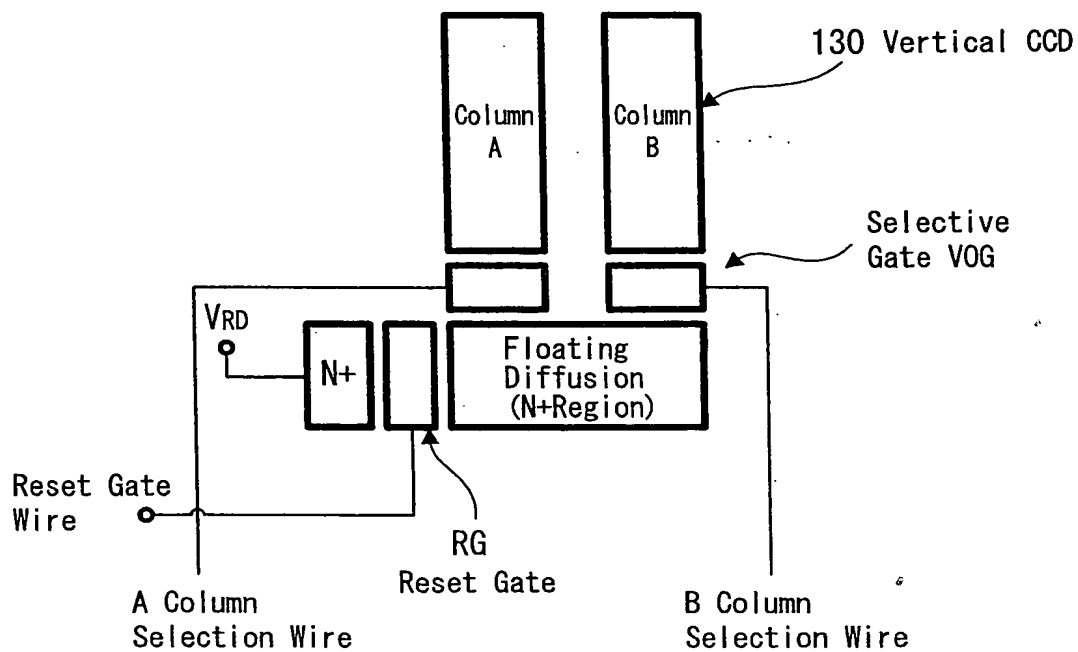


FIG. 16B

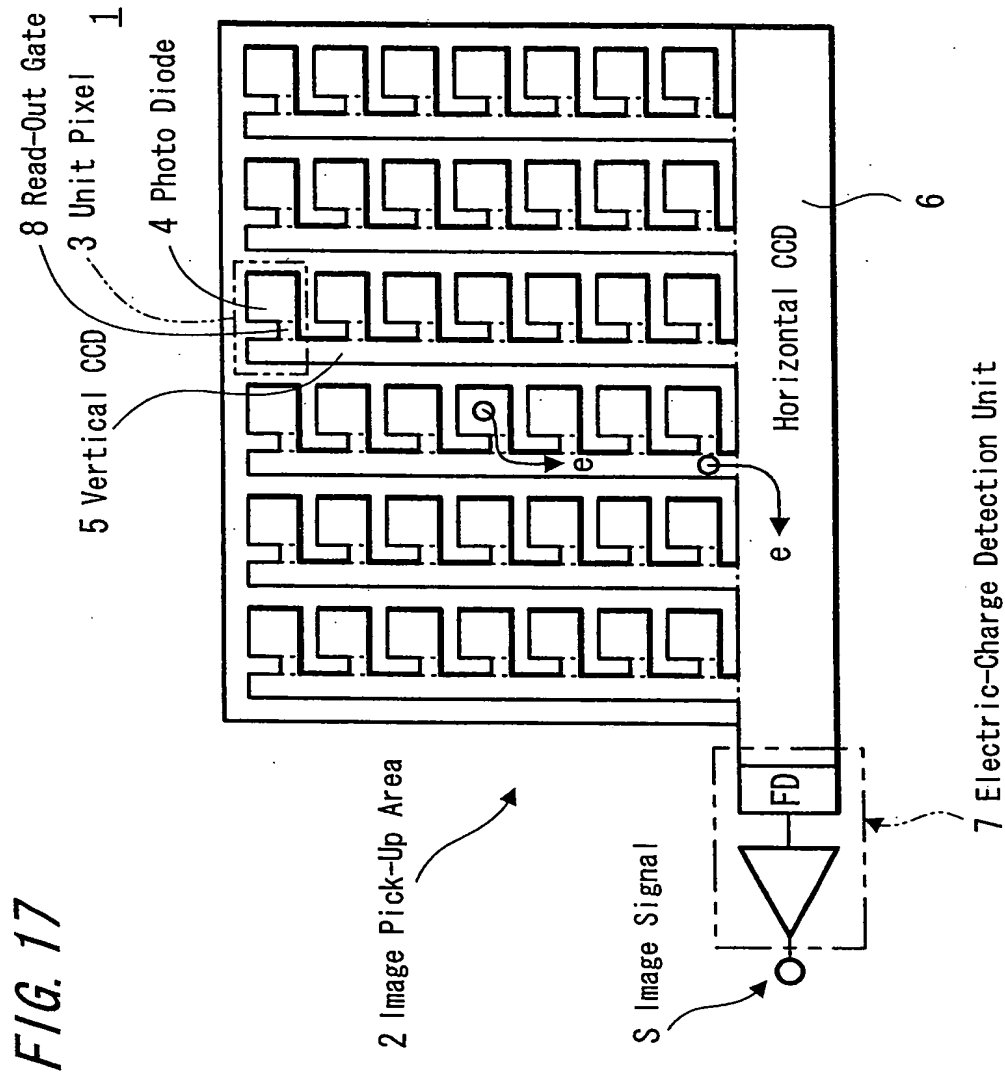


SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE

Inventor: Takayuki Toyama

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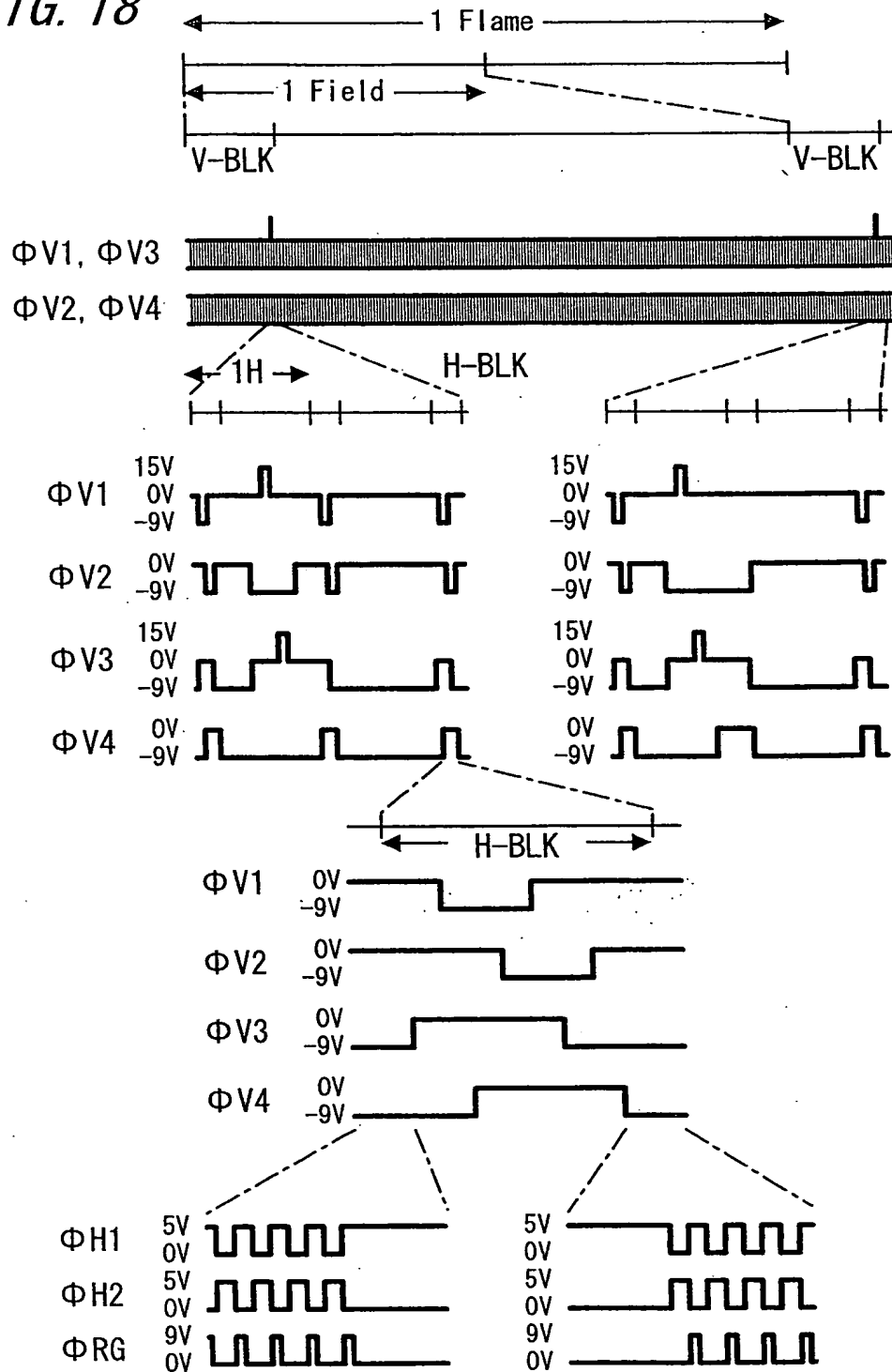
SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
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Inventor: Takayuki Toyama

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FIG. 18



SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE

Inventor: Takayuki Toyama
Attorney Docket No.: 075834.00400
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FIG. 19A

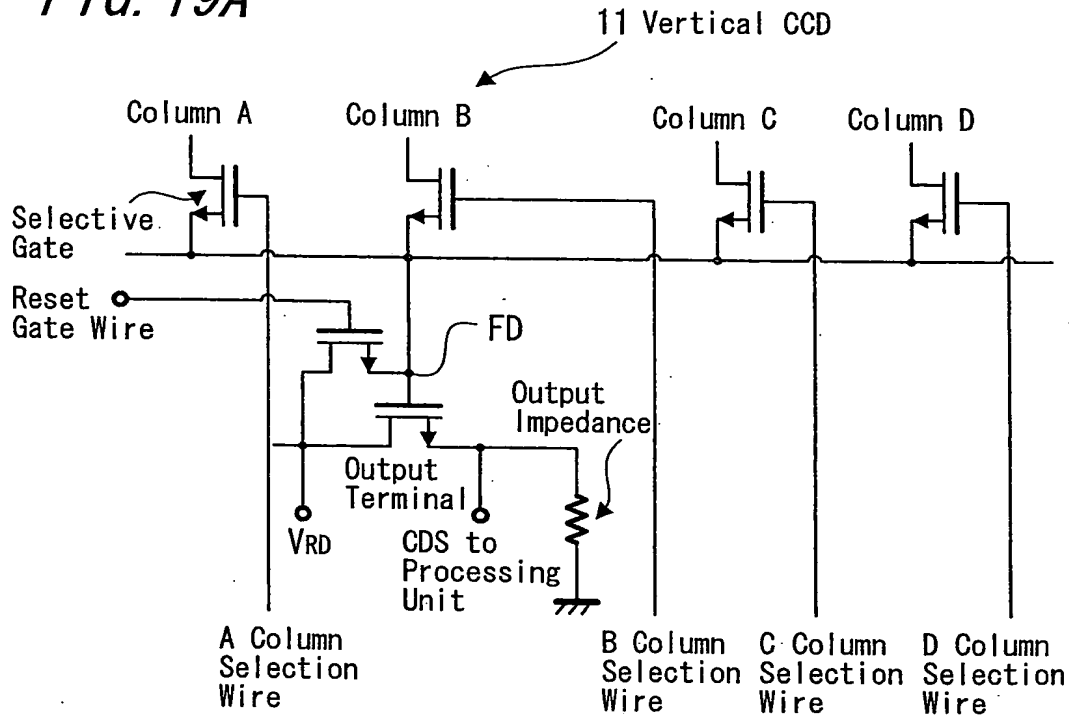
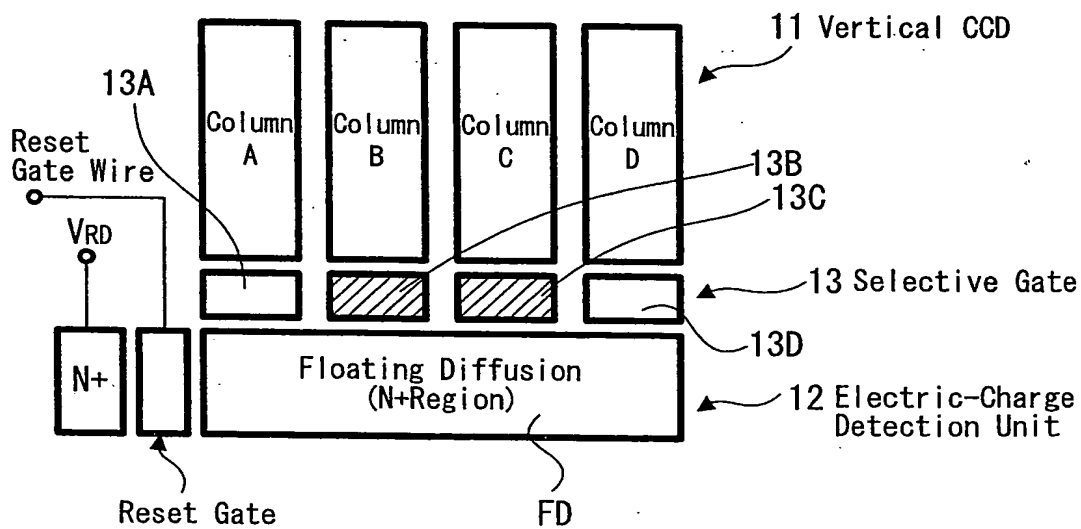


FIG. 19B



SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
IMAGE PICK-UP METHOD AND IMAGE PICK-UP DEVICE

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Attorney Docket No.: 075834.00400
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DESCRIPTION OF REFERENCE NUMERALS

1.. SOLID STATE IMAGE SENSOR
2.. IMAGE PICK-UP AREA
3.. UNIT PIXEL
4.. PHOTO DIODE
5.. VERTICAL CCD
6.. HORIZONTAL CCD
7.. ELECTRIC-CHARGE DETECTION UNIT
11.. VERTICAL CCD
12.. ELECTRIC-CHARGE DETECTION UNIT
13 [13A, 13B, 13C, 13D].. SELECTIVE GATE
S.. IMAGE SIGNAL
20.. IMAGE PICK-UP DEVICE
30.. OUTSIDE CIRCUIT
40.. SOLID STATE IMAGE SENSOR
70.. DRIVE POWER SOURCE
80.. TIMING GENERATOR
100.. IMAGE PICK-UP AREA
120.. PHOTO-CONDUCTIVE UNIT
130.. VERTICAL CCD
132.. DUMMY VERTICAL CCD
FD.. FLOATING DIFFUSION
ROG.. READ-OUT GATE UNIT
VOG.. SELECTIVE GATE
CS.. CHANNEL STOP
V1 to V6.. VERTICAL TRANSFER ELECTRODES
 ϕ V1 to ϕ V6.. VERTICAL TRANSFER PULSES
V_{og}.. SELECTIVE GATE VOLTAGE
 ϕ rg.. RESET GATE PULSE
V_{DD}.. DRAIN VOLTAGE
X_{sg}.. READ-OUT PULSE
V_{RD}..RESET DRAIN VOLTAGE
CLP.. CLAMP PULSE
HP.. HOLD PULSE
200.. READ-OUT PROCESSING UNIT
210.. ELECTRIC-CHARGE DETECTION UNIT
220a.. SIGNAL COMPONENT SELECTION MOS TRANSISTOR
220b.. NOISE COMPONENT SELECTION MOS TRANSISTOR
222a.. COLUMN SELECTION MOS TRANSISTOR FOR SIGNAL COMPONENT

SOLID STATE IMAGE SENSOR, DRIVE METHOD OF SOLID STATE IMAGE SENSOR,
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222b.. COLUMN SELECTION MOS TRANSISTOR FOR RESET NOISE COMPONENT
230.. BAND-LIMIT unit
230a.. FIRST BAND-LIMIT UNIT
230b.. SECOND BAND-LIMIT UNIT
250.. CDS PROCESSING UNIT
270.. COLUMN SELECTION UNIT
280.. COLUMN SELECTION PULSE GENERATOR
290.. OUTPUT SIGNAL WIRE
Ca.. BAND-LIMIT CAPACITY FOR SIGNAL COMPONENT
Cb.. BAND-LIMIT CAPACITY FOR RESET NOISE COMPONENT
CL.. CLAMP CAPACITY
Ch.. HOLD CAPACITY
LM.. LOAD MOS TRANSISTOR
DM.. DRIVE MOS TRANSISTOR
RG.. RESET GATE WIRE
SP(n).. COLUMN SELECTION PULSE
300.. SIGNAL PROCESSING UNIT
310.. A/D CONVERTER
320.. PICTURE MEMORY UNIT
330.. MEMORY CONTROL UNIT
340.. D/A CONVERTER
350.. NTSC CONVERTER
360.. DISPLAY
T0 to T12.. TIME
t1, t2.. TIME PERIOD